

Remarks

Upon entry of the foregoing amendment, claims 1, 9, 18, 20, and 36-67 are pending in the application, with claims 1, 18, 50, 58, and 64 being the independent claims. Claims 1, 9, 18, and 20 are sought to be amended. Claims 2-8, 10-17, 19, and 21-35 are sought to be cancelled without prejudice to or disclaimer of the subject matter contained therein. New claims 36-67 are sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Amendments to the Specification

Applicants have amended the specification, as noted above, to correct minor typographical errors. These changes add no new matter, and their entry is respectfully requested.

Rejections under 35 U.S.C. § 101

On page 1, paragraph 3 of the Office Action, the Examiner rejected claims 24-29 and 34-35 under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. Applicants have cancelled these claims without prejudice to or disclaimer of the subject matter contained therein. Thus, this rejection is moot. Reconsideration and withdrawal of this rejection are respectfully requested.

Rejections under 35 U.S.C. § 103

On page 5, paragraph 5 of the Office Action, the Examiner rejected claims 1-35 under 35 U.S.C. § 103 as being unpatentable over U.S. Pat. No. 5,115,500 to Larsen *et al.* (hereinafter, "Larsen") in view of U.S. Pat. No. 4,802,119 to Heene *et al.* (hereinafter, "Heene"). Applicants have cancelled claims 2-8, 10-17, 19, and 21-35 without prejudice to or disclaimer of the subject matter contained therein. Thus, the rejection of these claims is moot. Applicants respectfully traverse this rejection with regard to claims 1, 9, 18, and 20.

Larsen does not disclose "a plurality of boundary address registers for storing boundary addresses." Larsen also does not disclose or suggest "an ISA mode controller, coupled to the plurality of boundary address registers, that . . . receives an address of a program instruction to be decoded, compares the address to boundary addresses stored in the plurality of boundary address registers, and determines an ISA decoding mode for the program instruction based upon the comparison of the address to the boundary addresses."

Accordingly, Applicants have amended independent claim 1 to recite:

Claim 1: Instruction Set Architecture (ISA) selection logic within a CPU for selecting an ISA decoding mode for a program instruction, the selection logic comprising:

a plurality of boundary address registers for storing boundary addresses that partition an address space into a plurality of address ranges, each of the plurality of address ranges corresponding to one of a plurality of ISA decoding modes; and

an ISA mode controller, coupled to the plurality of
boundary address registers, that includes address evaluation
logic,

wherein the ISA mode controller

receives an address of a program instruction to
be decoded,

compares the address to boundary addresses
stored in the plurality of boundary address registers, and

determines an ISA decoding mode for the
program instruction based upon the comparison of the address
to the boundary addresses.

Similar features are recited in amended independent claim 18.

Neither Larsen nor Heene, alone or in combination, discloses or suggests the combination of features recited in independent claims 1 and 18. Thus, independent claims 1 and 18 are patentable over Larsen in view of Heene.

As noted by the Examiner, Larsen recites in the Brief Summary section (column 2, lines 26-34) that "The instructions, as loaded, are segregated or mapped into areas of the instruction store which are uniquely associated with containing instructions of a given format or type. Either specific regions of the instruction store may be reserved for each type or format of instruction, or instruction types identified to the link editor may be loaded and a table or map maintained of the locations in storage and the format type of instruction that is

contained therein." The table or map described by Larsen, however, is very different than "the plurality of boundary address registers for storing boundary addresses" and "the ISA mode controller" of the present invention.

As can be determined from reading Larsen in its entirety, the table or map referred to in Larsen is very different than, and does not describe or suggest, the claimed features of the present invention. For example, in the Description of Preferred Embodiment section of Larsen, Larsen states that "The general concept of placing instruction decoding tables in memory is extended in the present invention to permit placing instructions in various normally incompatible machine languages or formats into the instruction store, and yet allow for proper decoding" (column 4, lines 56-60). This extension presumably refers to overcoming the limitation of the technique described in the Prior Art section of Larsen at column 1, line 58 to column 2, line 4 (i.e., "the technique does not permit mixing of machine language instruction types or formats in a single machine;" see column 2, lines 2-4). The table or map of Larsen is stored in Instruction Decode Memory (IDM) 5. According to Larsen, "It is only when an additional new instruction set needs to be dealt with that the IDM 5 would have to be loaded with new tables." (See, Figure 2 and column 4, line 56 to column 5, line 33.) Additionally, both the address of a program instruction and the contents (e.g., opcode) of the program instruction are used to address the table or map of Larsen. According to Larsen, "The contents of IDSR 10 and of IDR 1 are taken together in FIG. 2 to provide a look-up address within the IDM 5 . . . Decoding of any specific instruction in the IDR 1 thus depends not only on the contents of the IDR 1 but on the region of the I-store 2 from which the instruction was fetched" (see column 6, lines 3-16). Thus, as can be seen by reading Larsen in its entirety, the table or map of Larsen does not suggest or describe "a plurality of

boundary address registers for storing boundary addresses" and "an ISA mode controller" according to the present invention. Heene does not overcome the deficiencies of Larsen.

For at least the above reasons, independent claims 1 and 18 are patentable over Larsen and Heene, alone or in combination. Claim 9 depends from independent claim 1, and claim 20 depends from independent claim 18. Thus, claims 9 and 20 are patentable over Larsen and Heene, alone or in combination, for at least the same reasons as independent claims 1 and 18 are patentable, and further for the specific features recited in claims 9 and 20.

Reconsideration and allowance of claims 1, 9, 18, and 20 are respectfully requested.

New claims 36-67

Applicants have added new claims 36-67 to further distinguish the present invention. These new claims recite features similar to originally presented claims 1-35, and thus it is believed that these new claims can be examined without necessitating a new search.

Each of the new claims 36-67 is directed to statutory subject matter.

New claims 36-49 are dependent claims that further describe the claimed inventions of independent claims 1 and 18. New claims 36-42 depend from independent claim 1. New claims 43-49 depend from claim 20, which depends from independent claim 18. Support for new claims 36-49 is found throughout the specification and figures. For example, for support for claims 36, 37, 43, and 44, see FIG. 4 and the paragraph of the present application beginning on page 34, line 1. For support for claims 38 and 45, see for example FIG. 4 and the paragraph of the present application beginning on page 35, line 17. For support for claims 39, 40, 46, and 47, see for example the paragraph of the present application beginning on page 36, line 9. For support for claims 42 and 49, see for example the paragraph of the

present application beginning on page 41, line 18. For support for claim 48, see for example the paragraphs of the present application beginning on page 43, lines 9 and 22.

Because claims 36-49 depend from one of independent claims 1 and 18, they are patentable over Larsen and Heene, alone or in combination, for at least the same reasons that independent claims 1 and 18 are patentable, and further for the specific features they recite.

New claims 50, 58 and 64 are independent claims. These new independent claims recite features similar to independent claims 1 and 18 and are patentable over Larsen and Heene, alone or in combination. Support for new claims 50, 58, and 64 is found throughout the specification and figures. For example, see FIGs. 6 and 7 and the descriptions of these figures in the text of the present application.

New claims 51-57, 59-63, and 65-67 depend from independent claims 50, 58, and 64, respectively. These claims are patentable over Larsen and Heene, alone or in combination, for at least the same reasons that independent claims 50, 58, and 64 are patentable, and further for the specific features they recite. Dependent claims 51-57, 59-63, and 65-67 recite features similar to dependent claims 36-49. Support for dependent claims 51-57, 59-63, and 65-67 can be found throughout the figures and specification of the present application, and more particularly as noted above with regard to dependent claims 36-49.

Entry, consideration, and allowance of new claims 36-67 are respectfully requested.

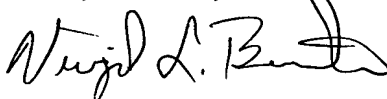
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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